

Remarks

In the Claims

Claims 1-19 were pending.

Claims 1, 4-14, 17 and 19 are amended.

Claims 2, 3, 15, 16 and 18 are cancelled.

The application now contains claims 1, 4-14, 17 and 19.

Claim 1 is amended to convert it into a process claim by inserting the phrase "process for preparing" into the preamble and including the limitations of now cancelled claim 15 immediately following the description of component b). Claim 1 is also amended to delete the option "or two" from the description of p. Support is found in original claims 1 and 15.

Claims 4-14 are amended to be converted into process claims consistent with claim 1 by inserting the phrase "process for preparing" into the preamble.

Claim 4 is further amended to be made dependent on claim 1.

Claim 7 is further amended to delete the word "derivatives" at the end of the claim.

Claim 8 is further amended to delete "glycidyl acrylic or C₁-C₄ alkylacrylic acid esters".

Claim 14 is further amended to include the limitations of now cancelled claim 16. Support is found in original claim 16.

Claim 17 is amended for consistency by replacing the term "method" with the term "process" in the preamble. Claim 17 is further amended to be made dependent on claim 14, to delete the final word "therein" and to include the phrase "obtained by the process" immediately following the term "the pigment dispersion". Support is inherent in the claims.

Claim 19 is amended to be made dependent on claim 17.

No new matter is added.

Claim Objections

The objection to claim 3 is obviated by the cancellation of said claim.

Claim Rejections

Claims 7, and 16-19 are rejected under 35 USC 112 second paragraph as being indefinite.

Applicants respectfully suggest that the amendments above have over come the rejections by deleting the word "derivatives" from claim 7 and by converting all claims to process claims. Claims 16 and 18 are also cancelled.

In light of the amendments above, Applicants respectfully submit that the rejections under 35 USC 112 second paragraph are addressed and are overcome and kindly ask that said rejections be withdrawn.

Claim Rejections under 35 USC 103(a)

Claims 1-7, 11, 12, 14 and 15 are rejected under 35 USC 103(a) as being obvious over Percec, US 5,886,118 which discloses copolymers prepared using sulfonyl halide initiators and metal catalysts.

Claims 1-7 and 9-19 are rejected under 35 USC 103(a) as being obvious over Matyjaszewski, US 5,807,937 in view of either Pearlstine, US 6,087,416 or Kapelle, US 6,063,834.

Claims 1-7 and 9-19 are also rejected under 35 USC 103(a) as being obvious over either Pearlstine, US 6,087,416 or Kapelle, US 6,063,834 in view of Matyjaszewski, US 5,807,937.

Claim 8 is rejected under 35 USC 103(a) as being obvious over Matyjaszewski, US 5,807,937 in view of either Pearlstine, US 6,087,416 or Kapelle, US 6,063,834 in further view of Matyjaszewski, 6,512,060.

Claim 8 is also rejected under 35 USC 103(a) as being obvious over either Pearlstine, US 6,087,416 or Kapelle, US 6,063,834 in view of Matyjaszewski, US 5,807,937 in further view of Matyjaszewski, 6,512,060.

Claims 1-17 are rejected under 35 USC 103(a) as being obvious over Spinelli, US 5,772,741 in view of Matyjaszewski, US 6,063,834.

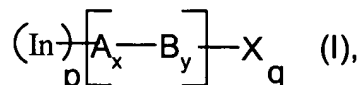
Claims 18 and 19 are rejected under 35 USC 103(a) as being obvious over Spinelli, US 5,772,741 in view of Matyjaszewski, US 6,063,834 in further view of Zhu, US 5,889,083.

Applicants respectfully traverse these rejections.

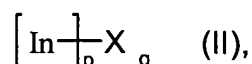
Before directly addressing each rejection under 103(a), Applicants wish to summarize some of the features of the present invention.

As amended, the claims relate to a process for preparing compositions comprising a block copolymer and a pigment.

1) The block copolymer is of formula I,



2) is prepared by atom transfer radical polymerization fragments A and B in the presence of polymerization initiator:



3) A and B are polymer blocks which differ in polarity

4) and the difference in polarity is obtained by copolymerizing polymer blocks A and B with different amounts of functional monomers.

The process results in compositions which are pigment dispersions useful in adding pigment colorants to coatings, inks plastics etc.

Percec, US 5,886,118 mentions pigments only in passing along with other possible additives. There is no disclosure of dispersions or pigment compositions. There is no disclosure of dispersants of different polarities.

Applicants respectfully submit that there is no suggestion in Percec to prepare the dispersions of the instant invention and kindly ask that the 35 USC 103(a) rejections of claims 1-7, 11, 12, 14 and 15 under over Percec, US 5,886,118 be withdrawn.

Any combination of Matyjaszewski, US 5,807,937, Pearlstine, US 6,087,416 and Kapelle, US 6,063,834 is deficient in having no clear teaching of pigment polymer dispersions and no teaching of block copolymers wherein the difference in polarity is obtained by copolymerizing polymer blocks A and B with different amounts of functional monomers.

Pearlstine, US 6,087,416 and Kapelle, US 6,063,834 mention both dyes and pigments, but neither reference favors pigments or teaches pigment polymer dispersions.

Pearlstine, US 6,087,416 requires silicon and fluorinated surfactants and teaches that unexpected differences can be encountered when employing the wrong system, see col 4 lines 21-22, "fluorinated surfactants tend to generate foam in the ink and are therefore not preferred".

While monomers with different polarities are found in the references, none of the references suggest generating a difference in polarity by copolymerizing polymer blocks A and B with different amounts of functional monomers.

Applicants respectfully submit that any combination of Matyjaszewski, US 5,807,937, Pearlstine, US 6,087,416 and Kapelle, US 6,063,834 fails to meet the limitations of the present claims 1-7 and 9-19. Applicants further respectfully submit that the suitability of the polymers of the present processes for pigment dispersions could not be gleaned from this combination of references.

Applicants therefore kindly ask that these rejections of claims 1-7 and 9-19 be withdrawn.

Applicants respectfully submit that the rejections of claim 8 under 35 USC 103(a) over any combination of Matyjaszewski, US 5,807,937 and , 6,512,060, Pearlstine, US 6,087,416 and Kapelle are addressed and are overcome by the above amendments to claim 8 which delete glycidyl acrylic or C₁-C₄ alkylacrylic acid esters.

Applicants therefore kindly ask that these rejections of claim 8 be withdrawn.

Spinelli, US 5,772,741 and Matyjaszewski, US 6,063,834 both disclose copolymers of hydrophobic blocks or hydrophobic blocks in combination with hydrophilic blocks. While such blocks may have different polarity, there is no disclosure of the utility as dispersants of the polymers of the instant invention wherein the difference in polarity is obtained by copolymerizing by the atom transfer radical polymerization method polymer blocks A and B with different amounts of functional monomers.

Further, the combination of Spinelli, US 5,772,741 and Matyjaszewski, US 6,063,834 does not disclose the preparation of pigment dispersions wherein no organic solvents are present. Such a composition is one the advantages of the processes of the present invention.

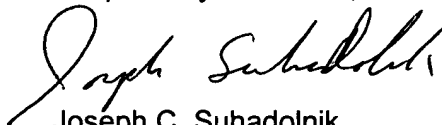
Applicants respectfully submit that the rejections of claims 1-17 under 35 USC 103(a) over Spinelli, US 5,772,741 and Matyjaszewski, US 6,063,834 are addressed and are overcome and kindly ask that these rejections be withdrawn.

Applicants further respectfully submit that the addition of Zhu, 5,889,083 disclosing ink compositions fails to compensate for the shortcomings of the Spinelli, US 5,772,741 and Matyjaszewski, US 6,063,834 as discussed above. Applicants therefore kindly ask that the 35 USC 103(a) over Spinelli, US 5,772,741, Matyjaszewski, US 6,063,834 and Zhu, 5,889,083 of claim 19 be withdrawn.

As there are no other rejections or objections, Applicants respectfully request that all objections and rejections be withdrawn and kindly ask that claims 1, 4-14, 17 and 19 be found allowable in their present form.

In the event that minor amendments will further prosecution, Applicants request that the examiner contact the undersigned representative.

Respectfully submitted,



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